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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TRAN, VINCENT HUY

ART UNIT

PAPER NUMBER

2115

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/594,827	<b>Applicant(s)</b> MONFERRER ET AL.	
	<b>Examiner</b> VINCENT T. TRAN	<b>Art Unit</b> 2115	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21-51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-42 and 44-51 is/are rejected.
- 7) ☒ Claim(s) 43 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/28/06, 4/23/07, 7/26/07, 10/29/07, 5/30/08,</u>             | 6) <input type="checkbox"/> Other: _____                          |
| <u>1/22/09.</u>  |   |



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### **DETAILED ACTION**

1. This Office Action is responsive to the communication filed on 10/19/05
2. Claims 21-51 are pending for examination.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 47 recites the limitation "the third logic" in line 3. There is insufficient antecedent basis for this limitation in the claim.
4. Claim 48 recites the limitation "the third logic" in line 3. There is insufficient antecedent basis for this limitation in the claim.
5. Claims 21-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

claims recite an apparatus comprising...However, it is noted that there is no physical structure recited in those claims but simply software/code/firmware/logic for performing a series of steps. As such, a claimed apparatus without any physical structure capable of performing the steps recited should be rewritten as a method claim. Thus, meters and bounds of the claimed apparatus is vague and indefinite.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

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Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 21-30 are rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. In the instant case, the claimed “first logic”, “second logic”, “third Logic”, and “fourth Logic” based on the Specification as filed (paragraphs 0040-0043) as well as their own recitation in the respective claims, directly relate to software elements per se. *In re Siew-Hong Yang-Huffman* (Fed. Cir. Oct. 4, 2007), *In re Comiskey*, Slip Op. at 21 (Fed. Cir. Sep. 20, 2007)

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 21-22, 25, 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Karr et al US 20070005152 (“Karr”).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

8. As per claim 21, Karr discloses an apparatus comprising:

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a first logic [210] to generate a first signal corresponding to one or more sensed temperature values; and

a second logic [220] to generate a second signal corresponding to one or more voltage values;

a third logic [claim 29 - a device] to generate a third signal corresponding to a leakage power value based on the first signal and the second signal [*1414 – determine a leakage power for the device based on the measured temperature and determined voltage; 1418 and paragraph 0068 – control the device based on the leakage power and active power includes throttling back the voltage applied to the device*].

9. As per claim 22, Karr discloses a fourth logic [a controller not show] to adjust power consumption of one or more component of a computing system based on the third signal [claim 8, 9 - controlling the first device includes controlling the voltage applied to the first device].

10. As per claim 25, Karr discloses the leakage power value corresponds to leakage power consumed by a device to which the sensed temperature values and the one or more voltage values correspond [paragraph 0026].

11. As per claim 29, Karr discloses one or more temperature sensors to sense the temperature values [210].

12. Claims 21, 24, 26-38, 39-42, 44-51 are rejected under 35 U.S.C. 102(e) as being anticipated by Jahagirdar et al US 20070001694 (“Jahagirdar”).

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The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

13. As per claim 21, Jahagirdar discloses an apparatus comprising:

a first logic [210] to generate a first signal corresponding to one or more sensed temperature values; and

a second logic [260] to generate a second signal corresponding to one or more voltage values;

a third logic [510] to generate a third signal corresponding to a leakage power value based on the first signal and the second signal.

14. As per claim 24, Jahagirdar discloses a fourth logic [Leakage Readout Register] to generate a fourth signal [output see fig. 5] corresponding to a base leakage power value [leakage power value from table 560], wherein the third logic [510] generates the third signal [output of 510] based on the first signal [Voltage], the second signal [Temperature], and the fourth signal [output of Leakage Readout Register].

15. As per claim 26, Jahagirdar discloses a storage unit [560] to store a plurality of temperature values [TRs], wherein the first logic generates the first signal based on one of the

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plurality of stored temperatures values [paragraph 0028 – the lookup table including a number of temperature ranges].

16. As per claim 27, Jahagirdar discloses a storage unit [560] to stores a plurality of voltage values [VRs], wherein the second logic generates the second signal based on one of the plurality of stored voltage values [paragraph 0028].

17. As per claim 28, Jahagirdar discloses a storage unit [560] to stored a plurality of leakage power values, wherein the plurality of leakage power values are indexed by the temperature and the voltage [paragraph 28 – leakage power values is read from table 560].

18. As per claim 29, Jahagirdar discloses a multiplier [310] to multiply the first and second signals to provide the third signal.

19. As per claim 31, Jahagirdar discloses one or more processor cores [200 fig. 2B] comprise one or more of the first logic, second logic, or the third logic.

20. As per claim 32, Jahagirdar discloses one or more processor cores [201...204], wherein at least one or the one or more processor cores [201], the first logic [210], the second logic [260], and third logic are on the same die [paragraph 0032 – the value for leakage power is calculated periodically by a processor core [third logic] which was dedicated to perform low level tasks].

21. As per claim 33, Jahagirdar discloses a method comprising:

determining a temperature scaling value corresponding to one or more temperature values sensed from a device [paragraph 0028; fig. 3; scale table 560 TR1...TR5; register 570];

determining a voltage value based on one or more voltage values corresponding to the device [paragraph 0028; fig. 3; scale table 560 VR1...VR2; register 570]; and



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scaling a reference leakage power value of the device based on the temperature scaling value and the voltage scaling value [reference leakage power value is obtain from table 560 – paragraph 0029] to generate a signal corresponding to a leakage power of the device [paragraph 0030; signal to leakage readout register - fig. 5].

22. As per claim 34, Jahagirdar discloses sensing an scaling are performed during run-time of the device [paragraph 0032].

23. As per claim 35, Jahagirdar discloses determining the temperature scaling value comprises accessing a storage unit [table 560].

24. As per claim 36, Jahagirdar discloses determining the voltage scaling value comprises accessing a storage unit [table 560].

25. As per claim 38, Jahagirdar discloses scaling the reference leakage power value comprises multiplying the reference leakage power value [k] by the temperature and voltage scaling value [fig. 3 and paragraph 0029].

26. As per claim 38, Jahagirdar discloses determining the reference leakage power value during test or design of the device [paragraph 0026 – value is generally computed as a part of the production testing].

27. As per claim 39, Jahagirdar discloses a computing system comprising:

a memory to store a plurality of bits representing a plurality of scaling factors [table 560, register 570, VRs];

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a first logic having one or more components to perform one or more computing operations [fig. 2B - processor]; and

a second logic [Logic 510] to scale a base leakage power value corresponding to at least one of the one or more components based [table 560], at least in part, on sensed temperature variations [TRs] and one or more of the plurality of stored scaling factors [VRs].

28. As per claim 40, Jahagirdar does not explicitly teach a third logic to adjust power consumption of at least one of one or more components based on the scaled leakage power value. However, this feature is deemed to be inherent to the Jahagirdar system since as show in paragraph 0001-0003 show, in order to effectively perform power management and thermal management in a computer system, the total power (including leakage power) consumption for selected components must be determined or estimated as accurately as possible in order to prevent overheating or failure. Therefore, the system of Jahagirdar would be inoperable to prevent overheating or failure without a third logic to adjust power consumption.

29. As per claim 41, Jahagirdar discloses at least one of the plurality of stored scaling factors [VR1...VR5; paragraph 0028 – scalar K index n for voltage] corresponds to a voltage scaling value.

30. As per claim 42, Jahagirdar discloses the voltage scaling value corresponds to one or more voltage value [paragraph 0028].

31. As per claim 44, see discussion in claim 37.

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32. As per claim 45, Jahagirdar discloses the plurality of the stored scaling factors comprises a plurality of temperature scaling values [TR1...TR2; index m for temperature] and a plurality of voltage scaling values [VR1...VR5].

33. As per claim 46, Jahagirdar discloses a read-only memory [read only memory 134].

34. As per claims 47-48, see discussion in claim 31-32.

35. As per claim 49, Jahagirdar discloses the one or more computing operations comprises one or more of data processing, data storage, and data communication [paragraph 0015, 0020].

36. As per claim 50, Jahagirdar discloses an audio device [paragraph 0015].

37. As per claim 51, Jahagirdar discloses one or more sensors [210] to sense the temperature variations.

38. Claims 21, 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Jacobson US 20060221527.

As per claim 21, Jacobson discloses an apparatus comprising:

a first logic [106 fig. 8] to generate a first signal corresponding to one or more sensed temperature values; and

a second logic [106 signal 7] to generate a second signal corresponding to one or more voltage values;

a third logic [104] to generate a third signal [124 or 125] corresponding to a leakage power value [paragraph 0148] based on the first signal and the second signal.

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39. As per claim 23, Jacobson discloses one or more voltage values comprises a current value of a threshold voltage [Drain voltage] and a current supply voltage [Gate voltage – fig. 8].

***Allowable Subject Matter***

Claim 43 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VINCENT T. TRAN whose telephone number is (571)272-7210. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas c. Lee can be reached on (57 1)272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Vincent T Tran/  
Examiner, Art Unit 2115